ENVIRONMENTAL PRODUCT DECLARATION

as per ISO 14025

Owner of the Declaration	ASSA ABLOY AB
Program operator	UL Environment
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	4790007541.143.1
Registration number	EPD-ASA-20210262- CCA1-EN
Issue date	01.07.2021
Valid to	30.06.2026

Access Control Systems – Aperio AH30 Hub

ASSA ABLOY AB

Registered under the scope of mutual recognition between Institut Bauen und Umwelt e.V. (IBU) and UL Environment

www.bau-umwelt.com

EPD Program and Program Operator Name, Address, Logo, and Website	UL Environment 333 Pfingsten Road Northbrook, IL 60611 https://www.ul.com/ https://spot.ul.com
General Program Instructions and Version Number	General Program Instructions v.2.5 March 2020
Manufacturer Name and Address	ASSA ABLOY Aperio P.O. Box 70340 SE-107 23 Stockholm, Sweden
Declaration Number	4790007541.143.1
Declared Product & Functional Unit or Declared Unit	Aperio AH30 Hub Functional Unit = 1 piece over 75 year building lifetime
Reference PCR and Version Number	UL Environment Part B: Builders Hardware EPD Requirements, Version 1.0, November 2019.
Description of Product Application/Use	ASSA ABLOY products are primarily used in commercial, residential, and educational settings.
Product RSL Description (if Appl.)	12 Years
Markets of Applicability	Global
Date of Issue	July 1, 2021
Period of Validity	5 Year
EPD Type	Product-Specific
Range of Dataset Variability	N/A
EPD Scope	Cradle to Grave
Year(s) of Reported Primary Data	October 2020 – December 2020
LCA Software & Version Number	GaBi 8.7
LCI Database(s) & Version Number	GaBi Sphera database, Service Pack 35
LCIA Methodology & Version Number	TRACI 2.1; CML 4.1

This PCR review was conducted by:	UL Environment PCR Review Panel epd@ulenvironment.com
This declaration was independently verified in accordance with ISO 14025: 2006. ☐ INTERNAL ☒ EXTERNAL	Grant R. Martin Grant R. Martin, UL Environment
This life cycle assessment was independently verified in accordance with ISO 14044 and the reference PCR by:	Thomas P. Gloria Thomas P. Gloria, Industrial Ecology Consultants

Limitations

Exclusions: EPDs do not indicate that any environmental or social performance benchmarks are met, and there may be impacts that they do not encompass. LCAs do not typically address the site-specific environmental impacts of raw material extraction, nor are they meant to assess human health toxicity. EPDs can complement but cannot replace tools and certifications that are designed to address these impacts and/or set performance thresholds – e.g. Type 1 certifications, health assessments and declarations, environmental impact assessments, etc.

Accuracy of Results: EPDs regularly rely on estimations of impacts; the level of accuracy in estimation of effect differs for any particular product line and reported impact.

Comparability: EPDs from different programs may not be comparable. Full conformance with a PCR allows EPD comparability only when all stages of a life cycle have been considered. However, variations and deviations are possible". Example of variations: Different LCA software and background LCI datasets may lead to differences results for upstream or downstream of the life cycle stages declared.

General Information

Description of Company/Organization

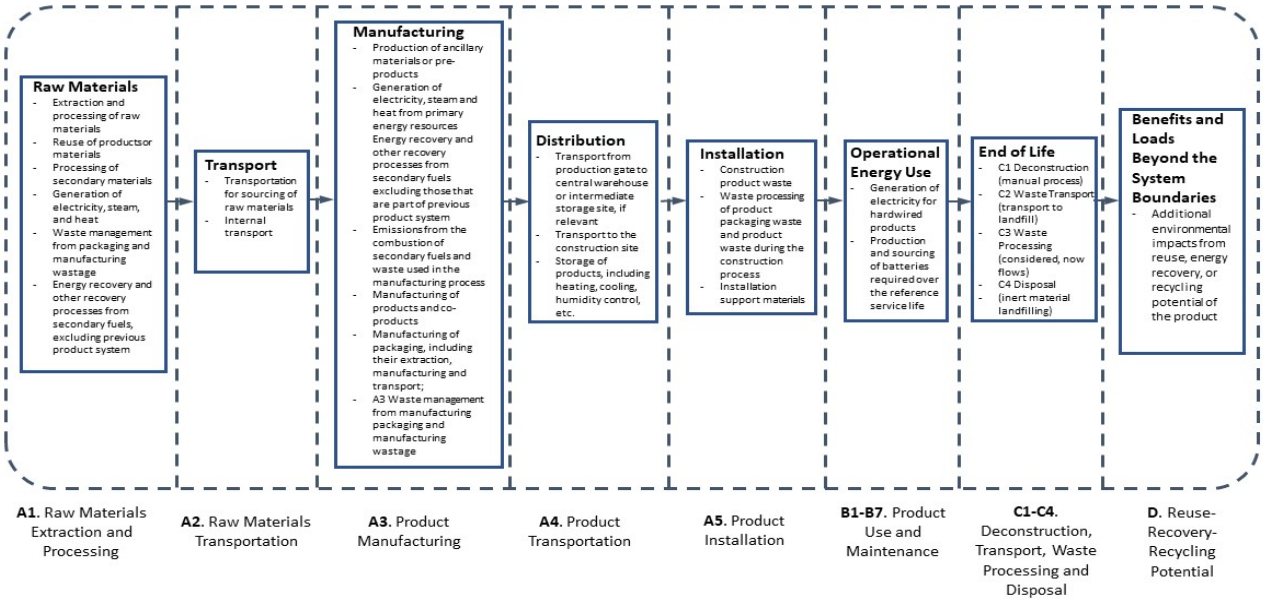
Products are manufactured by ASSA ABLOY. The manufacturing facility is located in Laguna, Philippines and has an ISO 14001 certified environmental management system in place.

ASSA ABLOY remains committed to the principles of the UN Global Compact in the areas of human rights, labor, the environment and anti-corruption.

Product Description

The Aperio AH30 hub, produced by ASSA ABLOY AB, is an accessory to the Aperio Wireless lock product range. The Aperio hub acts as a gateway between the Aperio Wireless lock and the OEM electronic access control system passing credential data in one direction and access decision in the other.
The Aperio hub communicates wirelessly via an IEEE 802.15.4 based radio interface towards the Aperio wireless reader and through a wired interface towards the OEM electronic access control system. The Aperio AH30 hub uses a wired RS-485 interface towards the OEM electronic access control system.
Wireless interface:
• IEEE 802.15.4 based interface running on the 2.4 GHz band
• ASSA ABLOY proprietary protocol on top of IEEE 802.15.4 for the Aperio application
Wired interface:
• 3-wire RS-485 interface
Other functions:
• DIP switch for configuration
• LED for operational state indication
• Tamper switch

Flow Diagram



Manufacturer Specific EPD

This product-specific EPD was developed based on the cradle-to-grave (modules A1-D) Life Cycle Assessment. The EPD accounts for raw material extraction and processing, transport, product manufacturing, distribution, installation, use, maintenance, disposal, and potential benefits and loads following the end of life disposal. Manufacturing data were gathered directly from company personnel.

Application

The Aperio hubs are suitable for indoor use. Common applications include: Commercial buildings, Industrial buildings, Government buildings, Education establishments, Healthcare buildings.

Material Composition

Material	Percentage in mass (%)
Brass	0.00%
Stainless Steel	0.00%
Steel	1.74%
Aluminum	0.00%
Electronics/Mechanics	0.00%
Plastics	58.33%
Other	39.93%
Total	100.00%

Technical Data

For the declared product, the following technical data in the delivery status must be provided with reference to the test standard:

Technical Data	
Power Supply	8 - 24 VDC
Power Rating	0.8 W
Radio	IEEE 802.15.4 (2400-2483,5) MHz
Receiver Sensitivity	-100 dBm 20% PER
Wireless Transmitt Power	10 dBm / MHz
Wireless Range	Up to 25 m (depending on installation environment)

Placing on the Market / Application Rules

The standards that can be applied for Aperio AH30 Hubs are:
Compliance with US and Canadian Directives
• UL294 ed 6 The Standard of Safety for Access Control System Units
Compliance with European Union Directives
For the placing on the market of the products in the EU/EFTA (with the exception of Switzerland) the following harmonization legislation of the European Union applies:
• Directive 2014/53/EU of the European Parliament and of the Council of 16 April 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of radio equipment and repealing 2014/53/EU RED.
The products are subject to CE marking according to this harmonization legislation. Affixing the CE marking to the products means the compliance of the products with the RoHS directives ROHS2 2011/65/EU and ROHS3 2015/863/EU.
The following standards should be taken into account:
• EN 62368-1: 2014 Information technology equipment - Safety – Part 1: General requirements
• EN 301 489-1/ V2.1.1 Common Technical requirements
• EN 301 489-17/ V3.2.0 Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment; Part 17: Specific conditions for Broadband Data Transmission Systems
• ETSI EN 300 328/ V2.2.2 Electromagnetic compatibility and Radio spectrum Matters (ERM); Wideband transmission systems; Data transmission equipment operating in the 2,4 GHz ISM band and using wide band modulation techniques;
FCC Certification:
• 47 CFR §15.225 Sub part B & C Operation within the band 2400-2483 MHz
• RSS-210 Issue 8: 2010 License-exempt Radio Apparatus (All Frequency Bands): Category I Equipment - Spectrum Management and Telecommunications Radio Standards Specification
RoHS Conformity:
• EN 50581:2012 Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances
• EN 50130-4 Compliant
• RCM (AS/NZS 4268)
• REACH Compliant

Properties of Declared Product as Shipped

Products are delivered as a complete unit, inclusive of all installation materials and instructions.

Delivery Status

The Aperio AH30 hub is shipped in a single package box which includes the Aperio hub, mounting plate, screws and installation manual. The dimension of the Aperio hub is (82mm x 82mm x 37 mm), the dimension of the single package box is (125mm x 125mm x 64mm). The shipment is done to ASSA ABLOY factories where the Aperio hubs are further co-shipped with Aperio wireless readers and accessories.

Methological Framework

Functional Unit

The declaration refers to the functional unit of 1 unit (or piece) of Aperio AH30 Hub, as specified in the Builders Hardware PCR.

Name	Value	Unit
Declared unit	1	1 piece of Aperio AH30 Hub
Mass	0.1152	kg
Conversion factor to 1 kg	8.681	-

System Boundary

This is a cradle to grave Environmental Product Declaration. The following life cycle phases were considered:

Product Stage			Construction Process Stage		Use Stage							End of Life Stage*				Benefits and Loads Beyond the System Boundaries
Raw material supply	Transport	Manufacturing	Transport from gate to the site	Construction/ installation process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction /demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Description of the System Boundary Stages Corresponding to the PCR
(X = Included; MND = Module Not Declared)

*This includes provision of all materials, products and energy, packaging processing and its transport, as well as waste processing up to the end-of waste state or disposal of final residues.

Product Maintenance

This product requires no maintenance over its reference service life.

Reference Service Life

The service life of the Aperio Hubs is estimated to be 12 years. The 12 years is based on the support and service life of the Aperio Hub and neither factual nor estimated life time.

Allocation

Allocation was determined on a per unit basis.

Cut-off Criteria

Processes whose total contribution to the final result, with respect to their mass and in relation to all considered impact categories, is less than 1% can be neglected. The sum of the neglected processes may not exceed 5% by mass of the considered impact categories. For that a documented assumption is admissible.

For Hazardous Substances the following requirements apply:

- The Life Cycle Inventory (LCI) of hazardous substances will be included, if the inventory is available.
- If the LCI for a hazardous substance is not available, the substance will appear as an input in the LCI of the product, if its mass represents more than 0.1% of the product composition.
- If the LCI of a hazardous substance is approximated by modeling another substance, documentation will be provided.

This EPD is in compliance with the cut-off criteria. No processes were neglected or excluded. Capital items for the production processes (machine, buildings, etc.) were not taken into consideration.

Data Sources

Primary data were collected for every process in the product system under the control of ASSA ABLOY Corporate. Secondary data from the GaBi Sphera database were utilized. These data were evaluated and have temporal, geographic, and technical coverage appropriate to the scope of the Builder's Hardware product category.

Data Quality

The data sources used are complete and representative of North America in terms of the geographic and technological coverage and are a recent vintage (i.e. less than ten years old). The data used for primary data are based on direct information sources of the manufacturer. Secondary data sets were used for raw materials extraction and processing, end of life, transportation, and energy production flows. Wherever secondary data is used, the study adopts critically reviewed data for consistency, precision, and reproducibility to limit uncertainty.

Period Under Review

The period under review is the October 2020 – December 2020 time frame.

Comparability and Benchmarking

A comparison or an evaluation of EPD data is only possible if all data sets to be compared were created according to EN 15804 and the building context, respectively the product-specific characteristics of performance, are taken into account. Environmental delarations from different programs may not be comparable. Full conformance with the PCR for North American Builders Hardware products allows EPD comparability only when all stages of a Builders Hardware product's life cycle have been considered. However, variations and deviations are possible.

Estimates and Assumptions

End of Life
In the End of Life phase, metal materials were assumed to have an 85% recycling rate while all other materials were assumed to have a 0% recycling rate, in accordance with the Builder's Hardware PCR.

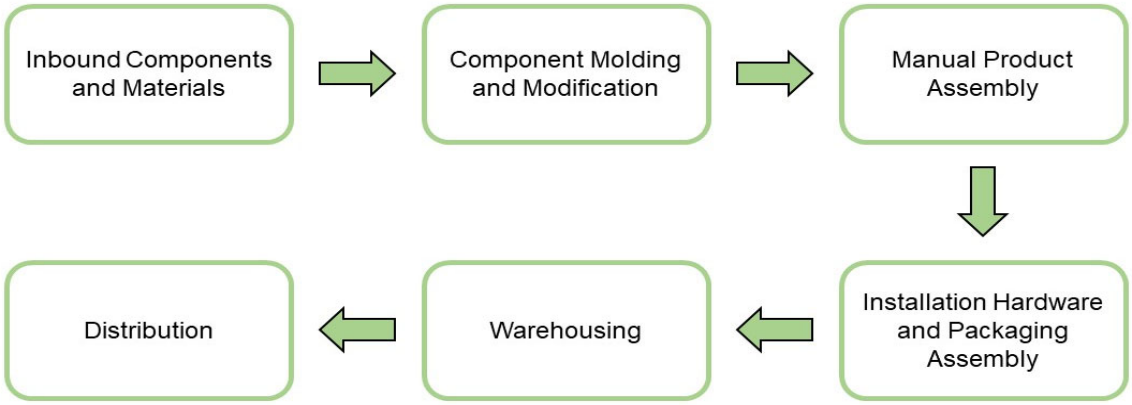
Additional Environmental Information

Background data

For life cycle modeling of the considered products, the GaBi 8 Software System for Life Cycle Engineering, developed by Sphera, is used. The GaBi-database contains consistent and documented datasets which are documented in the online GaBi-documentation. To ensure comparability of results in the LCA, the basic data of GaBi database were used for energy, transportation and auxiliary materials.

Manufacturing

The primary manufacturing processes occur in Laguna, Philippines. The components come from processes like plastic molding, PCB fabrication, stamped steel, and aluminum extrusion.



Packaging

All packaging is fully recyclable. The packaging material is composed by cardboard (app. 74%), paper (app. 5%), and plastic (app. 21%).

Material	Quantity (% By Weight)
Cardboard	74%
Other	26%
Total	**100%**

Transformation

Transport to Building Site (A4)		
Name	**Value**	**Unit**
Liters of fuel	38	l/100km
Transport distance	1000	km
Capacity utilization (including empty runs)	90	%
Gross density of products transported	-	kg/m^3
Capacity utilization volume factor	1.00	-

Product Installation

Aperio AH30 Hubs are distributed through and installed by trained installation technicians, such as locksmiths, carpenters etc. adhering to local/national standards and requirements.

Installation into the building (A5)		
Name	**Value**	**Unit**
Auxiliary materials	-	kg
Water consumption	-	m^3
Other resources	-	kg
Electricity consumption	0.01	kWh
Other energy carriers	-	MJ
Waste materials at construction site	0.07	kg
Output substance (recycle)	0.05	kg
Output substance (landfill)	0.01	kg
Output substance (incineration)	0.00	kg
Direct emissions to ambient air*, soil, and water	0.02	kg CO_2

*CO2 emissions to air from disposal of packaging

Reference Service Life		
Name	**Value**	**Unit**
Reference Service Life	12	years
Estimated Building Service Life	75	years
Number of Replacements	6	number

Product Use

No auxiliary or consumable materials are incurred for maintenance and usage of the reader. Repairs or replacement are not usually necessary. No cleaning efforts need to be taken into consideration.

Operational Energy Use (B6)		
Name	**Value**	**Unit**
Water consumption (from tap, to sewer)	-	m^3
Electricity consumption	84.10	kWh
Other energy carriers	-	MJ
Equipment output	-	kW
Direct emissions to ambient air, soil, and water	-	kg

Disposal

The product can be mechanically dissembled to separate the different materials. The components are disposed of according to standard municipal solid waste deposition.

End of life (C1-C4)		
Name	**Value**	**Unit**
Collected separately	0.00	kg
Collected as mixed construction waste	0.11	kg
Reuse	0.00	kg
Recycling	0.00	kg
Energy recovery	0.00	kg
Landfilling	0.11	kg

Re-use Phase

The following possibilities arise with reference to the material composition of the reader. Re-use - During the reference service life the reader can be disconnected and dismounted then remounted and
attached elsewhere. Material Recycling - The ASSA ABLOY factories provide arrangements for the collection, treatment, recycling and recovery of the Aperio Hubs sold.
Waste codes according to European Waste Catalogue and Hazardous Waste List - Valid from 1 January 2002.

- EWC 16 02 13* discarded equipment containing hazardous components other than those mentioned in 16 02 09 to 16 02 12
- EWC 16 02 14 Discarded equipment other than those mentioned in 16 02 09 to 16 02 13
- EWC 16 02 16 Components removed from discarded equipment other than those mentioned in 16 02 15
- EWC 17 02 03 plastic
- EWC 17 04 05 iron and steel
- EWC 17 04 11 Cables with the exception of those outlined in 17 04 10

Disposal of the product is subject to the WEEE Directive within Europe, Directive 2012/19/EU.

Re-Use, recovery, And/Or Recycling Potential (D)		
Name	**Value**	**Unit**
Net energy benefit from energy recovery from waste treatment declared as exported energy in C3 (R>0.6)	0.00	MJ
Net energy benefit from thermal energy due to treatment of waste declared as exported energy in C4 (R<0.6)	0.00	MJ
Net energy benefit from material flow declared in C3 for energy recovery	0.00	MJ
Process and conversion efficiencies		
Further assumptions for scenario development (e.g. further processing technologies, assumptions on correction factors);		

LCA Results

Results shown below were calculated using TRACI 2.1 Methodology.

TRACI 2.1 Impact Assessment

Parameter	Parameter	Unit	A1-A3	A4	A5	B4	B6	C2	C3	C4	D
GWP	Global warming potential	kg CO_2-Eq.	1.0E+01	3.9E-02	1.2E-02	4.5E+02	6.6E+01	5.3E-04	4.9E-05	1.8E-02	-9.9E-02
ODP	Depletion potential of the stratospheric ozone layer	kg CFC-11 Eq.	2.3E-11	1.5E-12	1.0E-14	7.0E-09	6.7E-10	2.0E-14	1.7E-15	-8.4E-17	4.8E-10
AP Air	Acidification potential for air emissions	kg SO_2-Eq.	6.9E-02	5.6E-04	6.2E-05	3.8E+00	5.7E-01	3.2E-06	3.0E-07	8.4E-05	-1.6E-04
EP	Eutrophication potential	kg N-Eq.	3.8E-03	3.0E-05	1.1E-05	7.1E-02	8.0E-03	1.8E-07	1.5E-08	3.1E-05	-7.3E-06
SP	Smog formation potential	kg O_3-Eq.	4.9E-01	1.6E-02	5.8E-04	3.0E+01	4.4E+00	8.8E-05	7.2E-06	3.3E-04	-2.8E-03
FFD	Fossil Fuel Depletion	MJ-surplus	5.5E+00	6.9E-02	3.8E-03	2.7E+02	4.0E+01	9.5E-04	8.0E-05	2.8E-03	-5.6E-02

**All use phase stages have been considered and only those with non-zero values have been reported*

Results shown below were calculated using CML 2001 - April 2013 Methodology.

CML 4.1 Impact Assessment

Parameter	Parameter	Unit	A1-A3	A4	A5	B4	B6	C2	C3	C4	D
GWP	Global warming potential	kg CO_2-Eq.	1.0E+01	3.9E-02	1.3E-02	4.6E+02	6.6E+01	5.4E-04	4.9E-05	1.9E-02	-1.0E-01
ODP	Depletion potential of the stratospheric ozone layer	kg CFC-11 Eq.	2.3E-11	1.5E-12	1.0E-14	5.8E-09	5.6E-10	2.0E-14	1.7E-15	7.5E-18	3.8E-10
AP Air	Acidification potential for air emissions	kg SO_2-Eq.	6.5E-02	4.5E-04	4.1E-05	4.1E+00	6.2E-01	2.6E-06	2.6E-07	3.2E-05	-1.6E-04
EP	Eutrophication potential	kg$(PO_4)^3$-Eq.	5.0E-03	8.5E-05	1.5E-05	1.6E-01	2.2E-02	4.7E-07	3.8E-08	3.5E-05	-1.5E-05
POCP	Formation potential of tropospheric ozone photochemical oxidants	kg ethane-Eq.	2.7E-03	4.0E-05	8.9E-06	3.8E-01	6.1E-02	3.1E-07	3.1E-08	8.5E-06	-3.4E-05
ADPE	Abiotic depletion potential for non-fossil resources	kg Sb-Eq.	6.3E-04	1.6E-11	1.9E-09	3.8E-03	7.3E-07	2.2E-13	8.5E-14	8.3E-10	-2.1E-07
ADPF	Abiotic depletion potential for fossil resources	MJ	6.6E+01	4.9E-01	3.3E-02	6.0E+03	9.4E+02	6.8E-03	6.3E-04	2.3E-02	-1.1E+00

**All use phase stages have been considered and only those with non-zero values have been reported*

Results below contain the resource use throughout the life cycle of the product.

Resource Use

Parameter	Parameter	Unit	A1-A3	A4	A5	B4	B6	C2	C3	C4	D
RPR_E	Renewable primary energy as energy carrier	MJ	1.3E+01	0.0E+00	4.8E-03	8.0E+01	0.0E+00	0.0E+00	2.2E-03	4.3E-02	0.0E+00
RPR_M	Renewable primary energy resources as material utilization	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
$NRPR_E$	Nonrenewable primary energy as energy carrier	MJ	7.8E+01	5.0E-01	3.5E-02	4.6E+02	6.8E-03	6.5E-04	2.4E-02	-1.1E+00	0.0E+00
$NRPR_M$	Nonrenewable primary energy as material utilization	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
SM	Use of secondary material	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
RSF	Use of renewable secondary fuels	MJ	5.7E-11	0.0E+00	0.0E+00	3.4E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
NRSF	Use of nonrenewable secondary fuels	MJ	7.2E-10	0.0E+00	0.0E+00	4.3E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
RE	Energy recovered from disposed waste	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FW	Use of net fresh water	m^3	-1.0E-01	0.0E+00	1.5E-04	-6.1E-01	0.0E+00	0.0E+00	0.0E+00	2.9E-05	4.5E-05

**All use phase stages have been considered and only those with non-zero values have been reported*

Results below contain the output flows and wastes throughout the life cycle of the product.

Output Flows and Waste Categories											
Parameter	**Parameter**	**Unit**	**A1-A3**	**A4**	**A5**	**B4**	**B6**	**C2**	**C3**	**C4**	**D**
HWD	Hazardous waste disposed	kg	1.2E-07	0.0E+00	8.7E-11	1.6E-07	0.0E+00	0.0E+00	0.0E+00	8.9E-11	-4.5E-08
NHWD	Non-hazardous waste disposed	kg	3.3E+00	0.0E+00	1.7E-02	6.8E+00	0.0E+00	0.0E+00	0.0E+00	2.5E-02	6.1E-03
HLRW	High-level radioactive waste	kg or m^3	4.6E-03	0.0E+00	7.9E-07	9.2E-03	0.0E+00	0.0E+00	0.0E+00	3.9E-07	-2.7E-07
ILLRW	Intermediate- and low-level radioactive waste	kg or m^3	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CRU	Components for re-use	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MR	Materials for recycling	kg	0.0E+00	0.0E+00	4.3E-02	8.8E-02	0.0E+00	0.0E+00	0.0E+00	1.7E-03	0.0E+00
MER	Materials for energy recovery	kg	0.0E+00	0.0E+00	3.4E-03	6.8E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
EE	Recovered energy exported from system	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

**All use phase stages have been considered and only those with non-zero values have been reported*

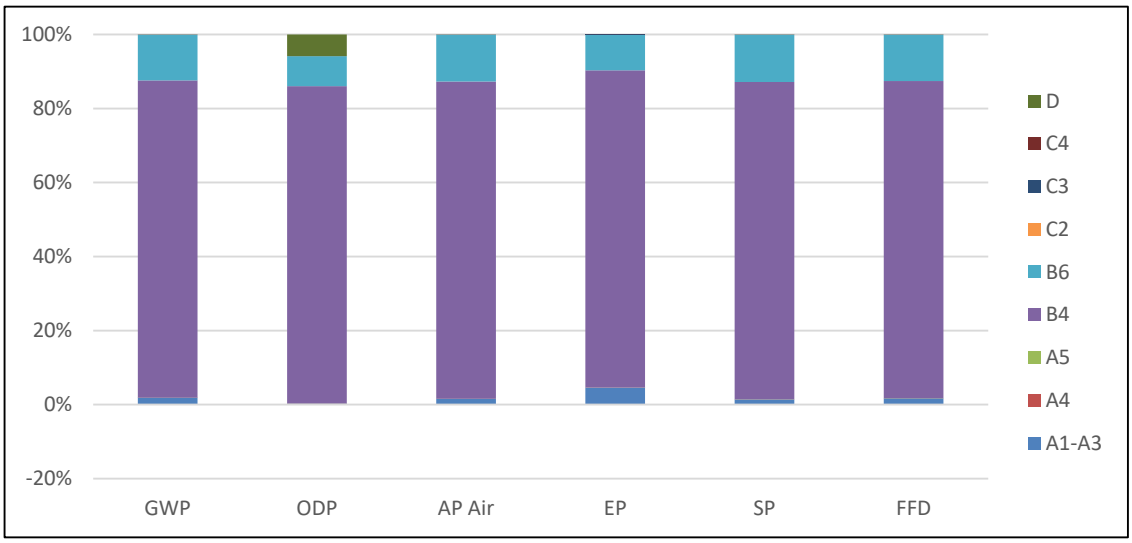
Results below contain direct greenhouse gas emissions and removals throughout the life cycle of the product.

Resource Use											
Parameter	**Parameter**	**Unit**	**A1-A3**	**A4**	**A5**	**B4**	**B6**	**C2**	**C3**	**C4**	**D**
BCRP	Biogenic Carbon Removal from Product	kg CO_2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
BCEP	Biogenic Carbon Emissions from Product	kg CO_2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
BCRK	Biogenic Carbon Removal from Packaging	kg CO_2	1.70E-02	0.00E+00	0.00E+00	1.02E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
BCEK	Biogenic Carbon Emissions from Packaging	kg CO_2	0.00E+00	0.00E+00	1.70E-02	1.02E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
BCEW	Biogenic Carbon Emissions from Combustion of Waste from Renewable Sources Used in Production Process	kg CO_2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CCE	Calcination Carbon Emissions	kg CO_2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CCR	Carbonation Carbon Removal	kg CO_2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CWNR	Carbon Emissions from Combustion of Waste from Non-renewable Sources Used in Production Process	kg CO_2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

**All use phase stages have been considered and only those with non-zero values have been reported*

LCA Interpretation

The operational energy use phase (B6) dominates the impacts across all impact categories. This is due to the consumption of electricity during the communication hub's usage. With six replacements required over a life-span of a building, the replacement stage (B4) dominates from duplicating these stages.



Additional Environmental Information

Environmental and Health During Manufacturing

ASSA ABLOY is committed to producing and distributing door opening solutions with minimal environmental impact, where health & safety is the primary focus for all employees and associates.
• Environmental operations, GHG, energy, water, waste, VOC, surface treatment and H&S are being routinely monitored. Inspections, audits, and reviews are conducted periodically to ensure that applicable standards are met and environment management program effectiveness is evaluated.
• Code of Conduct covers human rights, labor practices and decent work. Management of ASSA ABLOY is aware of their environmental roles and responsibilities, providing appropriate training, supporting accountability and recognizing outstanding performance.
• Any waste metals during machining are separated and recycled. The waste from the water-based painting process is delivered to waste treatment plant.
• The factories in Laguna, Philippines have certification of Environmental Management to ISO 14001:2004 and Occupational Health and Safety to OHSAS 18001:2007.

Environmental and Health During Installation

There is no harmful emissive potential. No damage to health or impairment is expected under normal use corresponding to the intended use of the product.

Extraordinary Effects

Fire
The external housing of the Aperio AH30 hub consists of a cover and mounting plate, are constructed from ABS. The housing material has been classified as having a UL94-V0 Flame Rating.
A UL94-V0 Flame Rating: burning stops within 10 seconds on a vertical specimen; drips of particles allowed as long as they are not inflamed.

Water
No substances are used which have a negative impact on ecological water quality on contact by the device with water.

Mechanical Destruction
No danger to the environment can be anticipated during mechanical destruction.

Delayed Emissions

Global warming potential is calculated using the TRACI 2.1 and CML 4.1 impact assessment methodologies. Delayed emissions are not considered.

Environmanetal Activities and Cerifications

ASSA ABLOY works hard to minimize the environmental impacts of its business activities through various corporate-wide sustainability initiatives. To learn more, please visit: https://www.assaabloy.com/sv/com/sustainability/sustainability-report/

Many ASSA ABLOY Group Brands now offer a free Product End-of-Life Recycling program that accepts each brand's products that have reached the end of their life cycle and are beyond the product's warranty period, disposing them in an environmentally-responsible manner.

Further Information

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References

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- PCR Part B — UL Environment: Product Category Rules Part B: Requirements on the Environmental Product Declaration for Builders Hardware, v.1.0, November 2019.
- GaBi 8.7 — thinkstep.one. GaBi Life Cycle Assessment version 8.7 (software).
- ISO 14025 — ISO 14025:2011-10, Environmental labels and declarations — Type III environmental declarations — Principles and procedures.
- ISO 14040 — ISO 14040:2009-11, Environmental management — Life cycle assessment — Principles and framework.
- ISO 14044 — ISO 14044:2006-10, Environmental management — Life cycle assessment — Requirements and guidelines.
- EN 15804 — EN 15804:2012-04: Sustainability of construction works — Environmental Product Declarations — Core rules for the product category of construction product
- ULE 2020 — UL Environment, General Program Instructions, 2020.
- ADAAG-1998 — Americans with Disabilities Act Accessibility Guidelines
- ANSI A117.1 — Accessible and Usable Buildings and Facilities
- CBC, Title 24 — Barrier Free guidelines
- ASTM E90 — Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building
- ASTM E283 — Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls,
- BHMA A156.21 — Thresholds
- UL 10(b) — Gasketing Material for Fire Doors
- UL 10(c) — Positive Pressure Gasketing Material for Fire Doors
- UL 2818 — GREENGUARD Certification Program for Chemical Emissions for Building Materials, Finishes and Furnishings
- ISO 21930: 2017 — ISO 21930:2017, Sustainability in buildings and civil engineering works - Core rules for environmental product declarations of construction products and services.
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